

THE COMPILATION AND USAGE OF
CONDEMNATION PROCEEDINGS DATA

by

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Brief Summary of the Report

1. Although there appear to be many factors which affect the magnitude of awards in right-of-way condemnations, the problem of testing for the significance of those factors is not insurmountable. This report provides an example of such testing.
2. There appears to be no significant relationship between the months delay from the date of original offer by the state to the landowner and the time a case goes to court.
3. The type of project (state or interstate) has no significant effect on the percentage increase in award over the original offer stated in the certificate.
4. The lower the absolute magnitude of the certificate, the greater is the percentage increase in award when a case goes to court.
5. Experienced commissioners don't grant awards which tend to be as large in relationship to the original certificate as do inexperienced commissioners.
6. In order to more fully explain the variation in awards granted in condemnation cases, several variables in addition to those enumerated in this report would have to be used.

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INTRODUCTION

Since the summer of 1970, the Economics and Environmental Management Section of the Virginia Highway Research Council has been involved in compiling, summarizing, and analyzing information on right-of-way takings. Dennis Merrill's report titled "Condemnation Procedure Alternatives for Virginia" contains the findings from a rather comprehensive investigation of the question: What procedure or procedures should be made standard for the state of Virginia in order to achieve equity in the granting of awards in condemnation hearings? Research which emphasized another aspect of right-of-way takings was conducted concurrently with Merrill's study. Several graduate students surveyed a large sample of the information from condemnation cases found in the files of the Highway Department's Right-of-Way Division. The surveyors spent many man-hours in an attempt to identify quantifiable relationships between the size of awards and variables which may be either modified or controlled somewhat by the procedure the Highway Department follows in right-of-way takings. The basic idea behind such an attempt was that if such were found to exist to any significant degree, the Highway Department might be able to modify the controllable variables and thereby fare somewhat better in court.

A summary of findings from this survey was presented at the April 1973 meeting of the Economics Research Advisory Committee which, among other points, included the following:

- (a) There are too many variables that might influence condemnation awards to permit easy identification of which ones do or do not.
- (b) On the average, the final award is usually that figure lying midway between the certificate of deposit and the owner's request.

Subsequent to the meeting of the Committee, it was decided that an attempt would be made to use the data compiled in a different manner.

It is pointed out that the short exercise presented in this report is of a purely exploratory nature, but it is believed to be suggestive of the use to which right-of-way information may be put and of a form which the data should take if they are to be so utilized.

A MODEL OF RIGHT-OF-WAY DATA USAGE

At the present time, condemnation awards judgements are handed down by a body of five commissioners. The commissioners are chosen from an original group of twelve people, six of whose names are submitted by each of the two parties in the case. Arguments are heard from both sides, each of which has its own expert witnesses to support its claim as to the value of the land condemned.

One might hypothesize that underlying this apparently simple procedure, there are identifiable variables which influence, to some degree, the amount of award given in each case. The difficulty has not been in determining these variables, but in determining the degree to which they affect awards. It is the feeling of the author that by the use of linear regression analysis one can obtain results which are consistent with Merrill's findings and first-hand knowledge regarding what does and does not influence awards.

The following is a step-by-step account of the procedure which the researcher used.

A. Defining the Variables

1. The dependent variable was defined as the percentage increase in the amount of award over that stated in the certificate of deposit. For example, if in a particular case the certificate was \$13,676 and the award was \$27,200, the value for the dependent variable would be approximately 100%.
2. The independent variables were as follows:
 - a) Time — the number of months between the date when the certificate is submitted and the date on which the court made the award.
 - b) Type of Project — project type was used as a variable to provide an indication of the effect on awards of interstate as opposed to state projects.

- c) Original Certificate of Deposit -- the original certificate of deposit is the absolute size of the original offer to the land owner by the Highway Department.
- d) The Set of Commissioners -- this variable is similar in kind to the variable defined in (b) above and is used to monitor the relationship between awards and the cohesiveness of a group of commissioners.

B. The Model

Whenever one sets out to test how various aspects of a procedure affect the results it renders, he must have in mind a sound basis for expecting certain relationships to exist. For example, the use of linear regression analysis does not proceed by gathering a group of data, punching it on cards, and plugging it into a computer. Rather one sets out with a basic theory or idea in mind -- in the case of condemnation hearings, the hypothesis is that the increase in award over offer is related to the above mentioned variables in the following manner:

a) On first glance, one would expect there to be a positive relationship between months' delay and the increase in award if time serves as an indicator of inflation. However, upon closer examination, one might on firmer ground contend that time does not significantly affect awards because assessments by the landowner's witnesses, which set an upper limit on awards, are usually made very close in time to the original certificate of deposit and therefore aren't revised during the interim between certificate and the date of awards.

b) The suggestion has often been made that awards granted in condemnation hearings on interstate projects tend to be unusually high or at least tend to be higher than awards on state projects. There are several reasons given to justify such an argument, one of which relates to funding and a second to the cohesiveness of the group or groups involved in the taking. On an interstate project the contention is that since 90% of the revenue for the project is derived from federal sources, individuals who have had land condemned have little aversion to asking for high awards, since they don't perceive that the tax cost to them is as great as it is under a totally state funded project. Recognition that the construction of an interstate highway can serve as a focal point for people banding together in a "common cause" is the foundation of the second reason alluded to above.

In some counties or jurisdictions, the building of an interstate highway may generate such publicity in the local news that not only may court awards become biased upward, but more cases may be taken to court than in the absence of such publicity and "politicking." (With respect to the first argument, it is the researcher's opinion that although some individuals would exhibit behavior similar to that discussed above concerning funding, these cases would not be numerous on a statewide basis, especially if one will agree that only a minority of citizens have more than a smattering of knowledge concerning funding formulas. As for the second argument, it is quite likely that in some counties or selected localities, publicity and/or group cohesiveness may lead to an upward bias in awards; however, if one draws a sample of data from the entire state, there is little justification for expecting a significant relationship between awards and type of project).

c) One would expect that the lower the original certificate of deposit, the higher will be the percentage increase in award over the size of certificate. This is partly justifiable in that within the group of cases going to court, all offers of which the landowners felt were too low [or they wouldn't have gone to court in the first place], the lowest will certainly tend to invoke more sympathy for the landowner than if the original offer were higher and, in the landowner's eyes, more equitable. A firmer basis for expecting an inverse relationship between percentage increase in award and the magnitude of certificate is that final awards are partially determined by court costs and attorney's fees, although consideration by the jurors of such fees is prohibited by law. In the case of a low offer it can be expected that these fees will increase the award by a greater percentage than would be the case for a higher certificate of deposit. This is the result of the fact that court costs and attorney fees do not vary proportionately with the dollar magnitude of the award.

d) The question as to the influence which commissioners have on awards is one of the most difficult with which to grapple. There is good reason to expect that, in general, awards will tend to be higher when those commissioners sitting on the case are inexperienced than when they have sat as a group before, because those not familiar with the condemnation hearing procedure will more often than not be sympathetic to the landowner's cause since he is in some sense the "damaged party" in the case. The reader should not conclude that experienced commissioners are unsympathetic to the fact that an individual has been forced to give up his land. On the contrary, the experienced commissioner has no less empathy for the condemnee than the commissioner who sits only once, but he tends to be more objective in granting awards.

C. The Use of Existing Data in Assigning Values to Variables

First, it will be expedient to include an example of the summary data sheet prepared by Arthur Irvine during the survey cited at the beginning of this report (see Tables 1 and 2). Hopefully, it is self-explanatory, and in fact it is an excellent method of arranging right-of-way information. There are, however, two suggestions which might be made with regard to the form of the data: (1) If at all possible, it might be valuable to know the acreage in each taking, to allow a standardization of awards on a per acre basis rather than just a dollar value. Furthermore, the dollar change per acre condemned would serve as a much better dependent variable than "percentage increase in award over certificate", the variable used for this study. (The use of a different independent variable would not, however, alter the conceptual analysis as it is explained here). (2) Case data, when summarized in county groups, should be placed in chronological order according to date of hearing. This would allow anyone who might desire to use the data in a time series fashion to do so with relative ease.

A sample of 96 observations (cases) covering both state and interstate projects was drawn from the summary data sheets compiled in the survey. This sample represents approximately one-sixth of the total number of cases the researcher had at his disposal. The data were divided into county groups and subclassified by type of project. From these groups were selected a set of stacks of cases that covered an equal number of state and interstate projects and a wide range of counties. The ultimate observations were drawn from this set of information, explicitly keeping in mind that no county should have an undue number of cases drawn from it. The dependent variable was calculated by subtracting 100 from the figure denoted by "Award/Cert." on the summary sheet. The independent variables for time and size of award were taken directly from the sheet while the variables for state vs. interstate projects and the commissioners were assigned values by the following method. If the particular observation drawn was a taking on an interstate project, a value of one was assigned; otherwise, the variable was given a value of zero. Similarly for the variable monitoring the effect of commissioners, if three or more of the five commissioners had sat together more than twice, the variable was given a value of one; otherwise it was assigned a value of zero. This is a legitimate procedure for categorical variables and simply allows one to estimate to what degree experienced commissioners judging together affect awards, it at all.

TABLE I
Sample Summary Sheet of Information From Right-of-Way Files

Award	Cert.	Delay	Award		Fee	Delay	Award		Cert.	Fee	Delay	Award		Cert.	Staff	Delay	Award		Cert.	Staff	No.	
			Cert.	Fee			Cert.	Fee				Cert.	Staff				Cert.	Staff				
\$ 2892	615	28	470%									615	1	870%							16*	
31650	24765	34	128				24765	32	128			30086	32	105%							17*	
18713	15303	37	122	15303	2	122%	100%														18*	
12800	3026	37	423	3026	3	423	100														19*	
7350	5850	37	126									3850	10	191			152	3975	12	185	147	20*
10555	4491	29	235	2852	6	370	157															21*
78400	41672	35	188	44172	13	177	94					43550	12	180			96					22*
5225	2350	48	222									2113	7	275			111					23*
3660	3660	44	100									3600	4	100			100					24*
1450	391	9	371									321	4	452			122					25*
18717	11827	34	203	9577	8	212	106					14466	10	213			103	19271	12	245	102	
	A/C																					158%

TABLE II
 Sample Summary Sheet of the Number of Times Commissioners
 Sat On Condemnation Cases

	Case Number																									# Cases appearing on	Total Awards	Total Cert.	Award/ Cert. 140%	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25					
Augusta I 81																											3	35992	25771	140%
Ashby, W. W.																											1	3660	3600	100
Beam, G. A.																											2	32245	19456	166
Bowman, C. C.																											1	46000	37827	122
Brooks, William																											3	27137	12168	223
Brush, Jr., C. E.																											7	63820	43064	148
Bush, C. E.																											1	31354	18043	177
Carson, Grier																											2	17125	11512	149
Cohran, W. S.																											9	235686	150406	157
Diehl, William																														
Other Commissioners																														

SIMILAR TO ABOVE



A linear regression* was then used to estimate the relative explanatory power of each of the variables discussed above. Although the independent variables explained only a small portion of the variation in award increases, the results** did indicate that the magnitude of the original certificate is statistically significant and does affect awards in the predicted fashion. This was also true for the variable monitoring commissioners. All other explanatory variables were statistically insignificant and therefore are consistent with Mr. Merrill's findings and the ideas developed earlier in this paper. That the R^2 was not high is not unpredictable in light of the fact that there are so many variables involved in the determination of a condemnation award.

If one were attempting to explain the variation in condemnation awards more fully, i. e. get a higher R^2 , it would be necessary to broaden the scope of the model by including additional explanatory variables such as the per acre value of land in the proximity of the take, the property tax rate, population density etc. By the use of these and other additional variables a better estimate of awards could be made. However, it is the opinion of the author that the coefficients** and t-scores** on the variables studied in this paper would be altered only slightly by such a modification. The fact that additional explanatory variables would be necessary to yield a more complete model of condemnation awards avoids one crucial point, however: the awarding of condemnation damages is, on the whole, a very subjective process and evades even the most rigorous analysis. As Mr. Merrill has so often stated, there is nothing which will substitute for well qualified commissioners.

In summary, it is the desire of the author that the reader will not view this study solely in terms of what is said concerning relationships between condemnation awards and the independent variables herein defined. It is intended that the study be perceived as a step toward formulating a methodological approach to the investigation of questions similar to the one addressed here. If this intention is fulfilled, the report will have served a useful purpose.

* See Appendix I

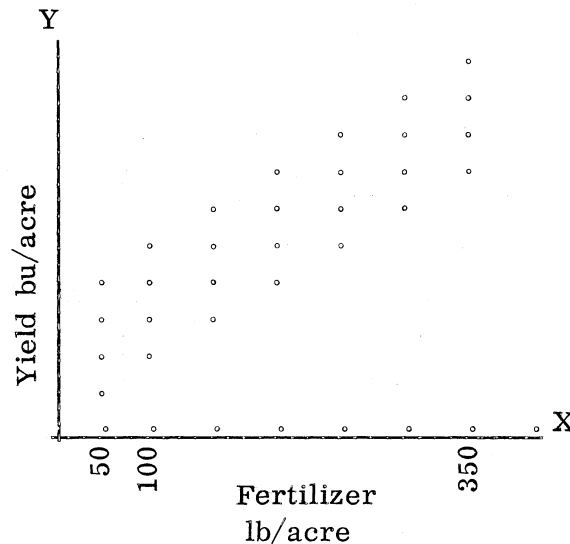
** See Appendix II

APPENDIX I

AN INTUITIVE EXPLANATION OF LINEAR REGRESSION

Possibly the best way to explain the method of linear regression analysis is by presenting an example. It is not intended that this appendix offer a rigorous explanation, only that it serve as a reader's guide. Although the example is taken from agricultural economics, it should be sufficient to fix the concept of regression analysis in mind.

Suppose the objective is to discover whether fertilizer application affects crop yield. If the yield from various fertilizer applications is plotted graphically as in the figure below, it is shown that fertilizer does affect yield.



It is also apparent that one should be able to estimate how fertilizer affects yield by an equation which relates Y to X . This is of course equivalent geometrically to fitting a line through the scatter of points in the graph of observed yields for various applications of fertilizer. This is called the regression of Y on X .

This same concept of "fitting a line through a scatter of observations" relating one variable to another or a set of others is used frequently by economists and other social scientists to help explain and better understand behavioral relationships which they observe. How well an equation (it need not be a straight line by many times is) fits the observed

data is indicated by R^2 ; R^2 is also known as the regression coefficient and indicates to the investigator what portion of the variation in the dependent variable, Y in the example above, is explained by the independent variable or variables. If one were to program the information from the agricultural example, he may get the following information from the printout:

$$R^2 = .33$$

$$Y = 40 + .068X$$

This would indicate that approximately one-third of the variation in yield/acre is explained by the application of fertilizer, whereas the remaining two-thirds is unexplained.

APPENDIX II

RESULTS OF THE LINEAR REGRESSION

$$R^2 = .08$$

$$Y = 150.44 - .4945 T - .4934X_1 - 33.52X_2 - 1.144X_3$$

$$\text{*t-value} \quad (-.694) \quad (-.103) \quad (-2.20) \quad (-1.4)$$

Y = the percentage increase in the amount of award over that offer stated in the certificate of deposit

T = time in months

X₁ = whether project was state or interstate

X₂ = absolute magnitude of certificate

X₃ = variable monitoring experience of commissioners

* The t-value in parenthesis indicates whether or not there is a high probability that the results from running the regression are purely by chance. In general the higher the t-value, the smaller the probability that the apparent relationship between the dependent and independent variables is purely by chance. The t-values above indicate with a relatively high degree of confidence (85%) that one can infer that:

1. the higher the original certificate of deposit the less the percentage increase in award.
2. the percentage increase in award is smaller, the more experienced are the commissioners.

